DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2017

MA1600 (A3): Higher Arithmetic – 3 (3-1-0) 60 Hours over 15 Weeks

INSTRUCTOR:	Tom McLeister	**PHONE:**	780 539-2961
OFFICE:	J212	**E-MAIL:**	tmcleister@gprc.ab.ca

OFFICE HOURS: M T W R   10:00-11:00

CALENDAR DESCRIPTION:

Elementary Number Theory, Numeration Systems, Number Systems and Elementary Probability Theory are included in this course.

PREREQUISITE(S)/COREQUISITE:

Mathematics 30-1 or equivalent or Mathematics 30-2 or equivalent

REQUIRED TEXT/RESOURCE MATERIALS:

Miller, Heeren, Hornsby, Heeren: Mathematical Ideas 13th Edition, Pearson, 2016

DELIVERY MODE(S):	Lecture	M	11:30-12:50	J202
		F	10:00-11:20	J202
	Seminar	T	11:30-12:20	J227

COURSE OBJECTIVES:

This course is designed to provide students with a broader and deeper understanding of the mathematics underlying the elementary school curriculum. An emphasis will be placed on problem-solving and non-calculator based techniques.

LEARNING OUTCOMES: By the end of the course, students will be able to:

- Apply and identify a variety of strategies for solving (mathematical) problems
- Recognize number patterns, including arithmetic and geometric sequences, and work with corresponding formulas in problem-solving applications

- Apply basic concepts and constructions of set-theory and use Venn diagrams to depict set relationships
- Count and perform basic arithmetic operations (addition, subtraction, multiplication and division) in non-standard base number systems
- Test for divisibility and primality, factor composite numbers, calculate greatest common divisors and least common multiples using multiple techniques
- Represent a real number on a number line, perform standard operations on real numbers (rational + irrational numbers), and order a set of real numbers
- Reduce rational number expressions to simplest form following rules for the order of operations and the field properties of the rational numbers
- Apply rules for operations with decimals and rounding
- Convert a rational number to a (terminating/repeating) decimal and vice versa
- Simplify square roots and approximate the square root of a number using the Babylonian method
- Solve and simplify linear equations and inequalities
- Solve problems involving ratios, proportion and percent
- Simplify rational exponential expressions, use scientific notation and absolute value

TRANSFERABILITY: Please consult the Alberta Transfer Guide for current transfer information (www.albertatransfer.com)

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

EVALUATIONS:

Worksheets:	10%
Assignments:	10%
Midterms:	40% (Midterm 1— Fri. Feb. 17; Midterm 2—Fri. Apr. 7)
Final Exam:	40% April 17-27 inclusive (including Saturdays and evenings)

It is the student's responsibility to be available to write the final exam at the scheduled time.

Writing early is not permitted.

GRADING CRITERIA:

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	95-100		C+	2.3	66-69
A	4.0	90-94		C	2.0	62-65
A-	3.7	85-89		C-	1.7	58-61
B+	3.3	80-84		D+	1.3	55-57
B	3.0	75-79		D	1.0	50-54
B-	2.7	70-74		F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE: We will cover approximately chapters 1-2, 4-7 in the textbook.

STUDENT RESPONSIBILITIES:

Refer to the College Policy on Student Rights and Responsibilities at
www.gprc.ab.ca/d/STUDENTRIGHTSRESPONSIBILITIES

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the College Student Misconduct: Academic and Non-Academic Policy at
www.gprc.ab.ca/d/STUDENTMISCONDUCT

**Note: all Academic and Administrative policies are available at
www.gprc.ab.ca/about/administration/policies/

CALCULATORS: Use of calculators is not permitted on the quizzes or exams.